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ABSTRACT

This learning module, which is part of a staff development program for health occupations clinical instructors, discusses using the techniques of questioning and problem solving in a clinical instructional setting. It includes learning activities dealing with the importance of using questions in the clinical setting, levels of questions in the cognitive domain, affective questioning in the clinical setting, ways of improving the quality of questioning, and strategies for helping students develop problem-solving skills. Besides the learning activities, the module also includes directions for completing the module, an introduction, module objectives, pre- and posttests and answer keys, definitions of key terms used in the module, a module summary, and references. (MN)

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Health Occupations Clinical Teacher Education Series for Secondary and Post-Secondary Educators

Illinois State Board of Education

Adult, Vocational and Technical Education

Teaching Skills in the Clinical Setting: The Use of Questioning and Problem-Solving Strategies

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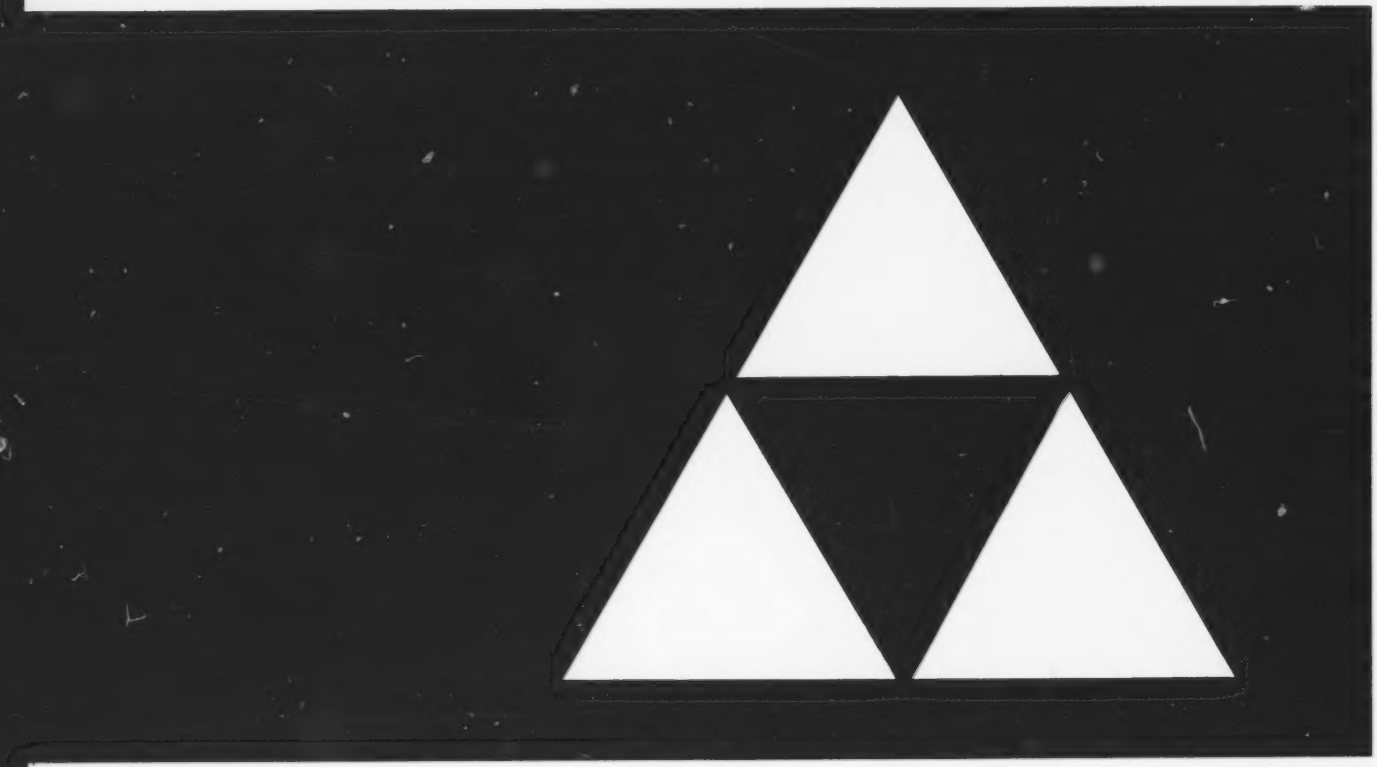

HEALTH OCCUPATIONS CLINICAL TEACHER EDUCATION SERIES FOR SECONDARY AND POST-SECONDARY EDUCATORS

Teaching Skills
in the Clinical Setting
The Use of Questioning and
Problem-Solving Strategies

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Research and
Development Section

TEACHING SKILLS IN THE CLINICAL SETTING: THE USE OF QUESTIONING AND PROBLEM SOLVING STRATEGIES

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TEACHING SKILLS IN THE CLINICAL SETTING:

THE USE OF QUESTIONING AND PROBLEM-SOLVING STRATEGIES

DIRECTIONS FOR COMPLETING THE MODULE

The module includes the following parts:

1) Introduction, Objectives, and Definitions

2) Pre-Test and Answer Key

3) Learning Activities 1 through 5, and Self-Check Exercises

4) Post-Test and Answer Key

Following review of the Introduction, take the Pre-Test and see the key to determine your score. The Pre-Test is intended to help introduce the activities within the module.

Then proceed to complete the Learning Activities. Even if you feel knowledgeable about the topic, completion of the Learning Activities will provide additional awareness and help you to grow. It is important that you complete the Self-Check Exercise following each activity.

The final part of the module, the Post-Test, is intended to measure your achievement of the objectives of the module. Complete the test without using the key or the module itself. You may then score your test. If you had more than 3 incorrect answers, you should review the module. The important part to remember is to practice what is suggested in this module.

Go on to the Introduction.

INTRODUCTION

Health-care workers at any level must be independent, high level thinkers. They must be able to solve problems that are oftentimes complex and require immediate attention.

In order to become high level thinkers, health occupations students should be assigned activities that stimulate them to think and solve problems they may encounter in the working world.

Faculty of health occupations programs make an attempt to help students become high level thinkers when they give students case studies or problems to solve in the classroom or laboratory setting. Even though these activities may be very helpful, they are carried out in a controlled environment, and students do not have the pressures they may encounter in a real-life situation.

The ideal setting in which to present students with real-life, stimulating activities is the clinical setting. As the clinical instructor, you are the key person to help students achieve higher levels. The various teaching methods and techniques discussed in the module, "Planning Teaching Activities in Clinical Education," provide the vehicles which you may use to stimulate students. However, "fuel" is required to operate any type of vehicle. The "fuel" that is utilized to operate most teaching methods is <u>oral questioning</u>.

By asking your students difficult, stimulating questions, you can help them to reach higher levels of reasoning and solve problems when performing procedures and with patients.

Oral questioning is a skill that initially requires determined effort and practice on your part. But once you become skillful at asking your students high level questions, you will soon see that your students are more motivated to learn, and are more independent thinkers. By utilizing the questioning and problem-solving strategies discussed in this module, you can become skillful at questioning and help your students become high level, independent thinkers rather than health-care workers who depend on others to help them solve problems.

Proceed to the Objectives.

OBJECTIVES OF THE MODULE

Terminal Objective: Analyze questioning and problem-solving strategies that help students learn in the clinical setting.

Enabling Objectives:

1. Discuss the use of oral questioning as an effective teaching strategy in the clinical setting.
2. Classify questions according to cognitive level.
3. Examine the use of affective questioning in the clinical setting.
4. Identify strategies that improve the quality of the instructor's questioning skills and the students' responses.
5. Analyze techniques that help students develop problem-solving skills in the clinical setting.

Go on to the Pre-Test.

PRE-TEST

Complete this test prior to beginning the learning activities. Utilize the key to score your own test.

Answer True or False to the following:

T or F 1) Most health-care workers must be high-level thinkers.

T or F 2) Some students are simply unable to think at high levels. Little can be done by an instructor.

T or F 3) The instructor's use of oral questioning may help build a student's self-esteem.

T or F 4) There is no need to question students who rarely make mistakes.

T or F 5) Synthesis questions are at a higher level than analysis questions.

T or F 6) Clinical instructors rarely have a need to use evaluation questions.

T or F 7) Students should be asked questions about their feelings and attitudes.

T or F 8) Asking questions helps students to internalize their values.

T or F 9) The question, "What are five causes of lung cancer?" is an affective question.

T or F 10) Probing is waiting 3-5 seconds following a question.

T or F 11) A smile is an example of nonverbal reinforcement.

T or F 12) Negative reinforcement should never be used.

T or F 13) Comprehension and application questions are the best to use for problem-solving.

T or F 14) Reinforcement and pausing should not be used in the problem-solving approach.

T or F 15) The clinical instructor can help students develop problem-solving skills in various ways.

Go on to the Pre-Test Answer Key.

PRE-TEST ANSWER KEY

1) True

2) False. Instructors can use numerous techniques to help students think at high levels.

3) True

4) False. Questions can be used to make sure students understand what is expected of them.

5) True

6) False. There is a great need for high-level evaluation questions.

7) True

8) True

9) False. It is a cognitive question.

10) False. Probing is searching for an answer.

11) True

12) False. Negative reinforcement should be used, but only when necessary.

13) False. High-level analysis, synthesis and evaluation questions should be used for problem-solving.

14) False. They should be used with any question.

15) True

Go on to the Definition of Terms.

DEFINITION OF TERMS USED IN THE MODULE

Affective - pertaining to the attitudes, values, beliefs, and emotions of an individual.

Cognitive - pertaining to an individual's basic reasoning processes.

Case Study - a teaching technique in which the learner is asked to apply general principles or concepts to specific problem situations.

Role Playing - a teaching technique in which the learner is spontaneously asked to act out a role involving interpersonal relationships.

Simulation - a teaching technique in which the learner is asked to demonstrate a skill in an artificial representation of reality.

Proceed to Learning Activity #1.

LEARNING ACTIVITY #1

THE IMPORTANCE OF USING ORAL QUESTIONING IN THE CLINICAL SETTING

Enabling Objective 1: Discuss the use of oral questioning as an effective teaching strategy in the clinical setting.

Benefits of Oral Questioning

The use of oral questioning helps the clinical instructor to become more effective in numerous ways. By using oral questioning, clinical instructors help students to:

1. Recall what they have learned
2. Think critically
3. See applications of concepts
4. Become actively involved in their learning
5. Learn more on their own
6. Become more interested in the material
7. Develop positive, healthy self-concepts
8. Develop appropriate attitudes toward work and patient care
9. Become problem-solvers
10. Become motivated to take on greater responsibility

Without using effective, high-level questioning, clinical instructors may produce health professionals who are capable of performing tasks, but only at low levels. The effectiveness of oral questioning is demonstrated in the following situations:

Situation A: John, a radiologic technology clinical instructor at City Hospital, assigns Sue, a second-year student, the task of taking skull x-rays on an unconscious patient. During the procedure, Sue has difficulty obtaining a view and John takes over the exam, demonstrating to her how to correctly obtain the view. He finishes the exam by saying, "Next time you'll be able to do it by yourself, right?" Sue replies, "yes," and John assumes she is now competent in the skill.

Situation B: The radiologic technology clinical instructor at General Hospital, Dave, approaches Karen, also a second-year student and states, "Karen, we have an order to complete a skull series on an unconscious patient. I would like you to do it. How will you complete the procedure? What modifications are necessary?" Karen explains how she will proceed with the exam. While they are completing the exam, Karen has difficulty remembering where to position the film. Dave positions the film for her and asks, "Why did I move the film in that direction?"

Following completion of the procedure, Dave questions Karen about the quality of her performance, and one of the questions he asks is, "How would you perform it differently the next time?"

In which situation, A or B, do you think the student is more likely to be able to repeat the exam independently? Obviously, in situation B. By questioning Karen before, during, and after the procedure, Dave stimulated her to think and solve a problem that she will undoubtedly encounter again.

In the first situation, John committed an error frequently made by clinical instructors--that of assuming that the student understood why she had difficulty, and that her performance would be fine the next time. The two situations demonstrate that oral questioning is an important skill that must be used correctly by clinical instructors whenever teaching or supervising students.

Why Do Clinical Instructors Avoid the Use of Oral Questioning?

As a clinical instructor, you could probably develop a list of reasons why you do not spend more time questioning your students. The list may include the following reasons:

-- I don't have time.
-- I can't ask questions in front of the patients.
-- If a student performs a skill satisfactorily, he/she doesn't need to be questioned about it.
-- There is too much pressure to be spending time asking questions. That should be done in the classroom.

All of these reasons may appear to be valid. However, as demonstrated by research done in health occupations education, the use of questioning helps students to become the "thinking" health professionals we would like them to be.

Clinical instructors can overcome the barriers to utilizing oral questioning in several ways:

1. Make the time. Question the student about his/her performance of a skill, even if it is hours later. However, ideally it is best to question students as soon as possible while their performance is fresh in their minds.

2. Use discretion when asking questions if patients are nearby. Obviously, you do not want the patient to lose confidence in you or the student. But questions may be asked following a procedure or in a location where the patient cannot hear.

3. Recognize that questioning is important regardless of how well a student performs a skill. Does the student know "why" he/she did it that way?

4. There may be a great deal of pressure in the clinical setting but that is precisely why students are there--to experience the "real world." Take advantage of it and incorporate your questioning right into the situations.

Conclusion: The "Art" of Oral Questioning

The effective use of oral questioning is a complex process that takes practice and determination on the part of the instructor. Once you have completed the remaining activities in this module, you will have more knowledge of the skills required in asking questions, and hopefully will be able to apply these skills to your students in your clinical environment. The important point to remember is that you must practice the use of the suggested strategies, and soon you will become "artistic" in your questioning. The result will be the reward of seeing your students become "top-notch" workers in their profession.

Go on to the Self-Check for Learning Activity #1.

SELF-CHECK FOR LEARNING ACTIVITY #1

1. Identify 5 ways that the use of oral questioning benefits students.

   a.

   b.

   c.

   d.

   e.

2. Comment on the accuracy of this statement:

   "Mark is able to perform all of the competencies required of him quite well. It would be a waste of time to ask him questions while he is completing these skills."

Check your answers with the following key.

SELF-CHECK ANSWER KEY

1. Oral questioning helps students to:

   a. recall what they have learned
   b. think critically
   c. see applications of concepts
   d. become actively involved in their learning
   e. learn more on their own
   f. become more interested in the material
   g. develop positive, healthy self-concepts
   h. develop appropriate attitudes toward work and patient care
   i. become problem-solvers
   j. become motivated to take on greater responsibility

2. As an instructor, you can never be quite sure if your students understand the material. By asking more questions, you can determine whether he understands the concepts, and help him to think at higher levels.

Go on to Learning Activity #2.

LEARNING ACTIVITY #2

LEVELS OF QUESTIONS IN THE COGNITIVE DOMAIN

Enabling Objective 2: Classify questions according to cognitive level.

Teachers who are skillful at questioning ask questions at all levels. They may ask a student to recall previous knowledge such as, "What is the normal resting pulse rate of an adult?" or higher level questions such as "How would you determine if a patient was having a cardiac arrest?" The level of questioning to be used depends primarily on the student's level of understanding of the material. Students in early stages of their Health Occupations education program should be asked lower level questions whereas students near completion of the program should be asked higher level questions. However, each situation varies and it is up to the instructor to determine the student's level of understanding of a subject.

The level of questioning may also be dependent on the subject matter being taught. When questioning students about a subject area such as medical terminology, the instructor will use lower levels of questions. This differs from a subject such as advanced patient care, where all levels of questioning may be used.

Questions may be classified according to levels in the same manner as behavioral objectives. (See the module, "Developing Measurable Performance Objectives.") Bloom's Taxonomy (1956) is utilized to classify questions in cognitive domain--questions that deal with memorization and application of facts. Using Bloom's Taxonomy (1956) questions may be classified into six levels: knowledge, comprehension, application, analysis, synthesis, and evaluation. Each will be discussed in relationship to oral questioning.

Lower Order Questions--Knowledge, Comprehension, Application

a. Knowledge: Knowledge level questions deal with the recall of facts. Questions at the knowledge level usually begin with who, what, where, or when and usually have only one correct answer. Examples of knowledge level questions are:

1) When is the fluoride treatment given to a patient?

2) What is the normal red blood cell count?

3) Where should the central ray be directed for a lateral view of the skull?

In each of these examples of knowledge level questions, the clinical instructor is asking for a simple recall of previously learned facts.

b. Comprehension: Once the student demonstrates that he/she has knowledge of the facts, questions should be asked to determine if the student has a good understanding or "comprehension" of the material. The student who comprehends the material is able to relate the material to other ideas. Questions at this level usually begin with how and why. Examples of comprehension level questions are:

1) How does medical asepsis differ from surgical asepsis?

2) Why are the feet of a shock victim raised higher than the head?

Questions such as these help the student to "grasp" the meaning of the concepts rather than simply memorize facts.

c. Application: Questions at the application level ask students to apply previously learned knowledge to new or unique situations. Examples of application questions are:

1) You are using an x-ray machine with a fixed voltage. How would you adjust the exposure for a large patient?

2) You observe a physician who is prepared for surgery unknowingly touch a nonsterile area. What should you do?

In each case the student is being asked to apply previously learned knowledge in a new situation. These questions are at a higher level than knowledge or comprehension.

Higher Order Questions--Analysis, Synthesis, Evaluation

d. Analysis: Analysis questions test higher levels of cognition. During analysis, the learner is asked to take apart or "break down" material and show how each part fits into the whole. Analysis involves seeking out the underlying relationships. Examples of analysis questions are:

1) Now that we've studied hemoglobin, what steps would you take to determine if a patient's hemoglobin was normal or abnormal?

2) You have observed several hygienists take medical and dental histories. How do they differ in their techniques?

In each analysis question, the student is asked to take apart material and identify steps (example 1) or differences in technique (example 2). The student is being asked to look at each part of a whole concept.

e. Synthesis: At this level the learner must put the parts together into a new "whole." During synthesis, a student may be asked to generate a solution to a problem or develop a plan to solve a problem. Examples of synthesis questions are:

1) According to this patient's chart, she has severe congestive heart failure. How would you plan oxygen therapy for this patient?

2) You are requested to take radiographs of a trauma victim with multiple injuries of the head, neck, abdomen, and chest in the emergency room. Propose a plan to complete the exams as efficiently and logically as possible.

3) The urinalysis just completed indicates a high level of uric acid. What conclusions could be drawn about the patient's diagnosis?

The students in examples 1 and 2 are being asked to devise a plan to solve a problem. In the third example, the student is asked to actually develop or synthesize a conclusion or solution to a problem.

f. Evaluation: In the highest level of cognition, the evaluation level, the learner may be asked to make judgements of the solution to a problem or material presented, or to offer an opinion on a recommendation.

Examples of evaluation questions are:

1) Three treatments for this patient have been suggested by the oncologist. Which do you think is the best treatment and why?

2) Why do you think the oxygen flow rate should be increased on this patient?

3) How would you rate your performance of the suctioning procedure compared to the last time you did it?

In each evaluation question the learner is asked to make a judgement of a recommended treatment (examples 1 and 2) or performance of a procedure (example 3). These questions are all high level questions involving more than mere recall of information or application of facts.

The following is a situation in which the clinical instructor uses questioning at all six levels:

A student is assigned to independently assist a physician with a physical exam for the first time. Example questions:

Prior to the physical exam the instructor might ask:

1) What equipment do you need? (Knowledge)

2) How should the patient be draped for the routine focal examination? (Comprehension)

3) What additional equipment is needed if the physician decides to do a complete physical instead of a focal examination? (Application)

4) What factors need to be considered for the emotional and physical preparation of the patient? (Analysis)

Following the physical exam the instructor might ask:

5) Now that you've completed your first attempt at assisting with a physical, identify in order the steps that you would use in the future. (Synthesis)

6) What were the strengths and weaknesses of your overall performance of assisting with a physical exam? (Evaluation)

It is rare that an instructor uses all levels of questioning within a 15-minute teaching session such as the one just described. Nevertheless, you should attempt to use high level analysis, synthesis and evaluation questions whenever possible, especially for students in the higher levels of their health occupations training. Lower-level knowledge, comprehension, and application questions are often used to check for understanding, and to assist students when they are unable to answer high-level questions.

Summary

In summary, cognitive questions may be asked at six different levels--knowledge, comprehension, application, analysis, synthesis, and evaluation. As the instructor, you will have to use judgement in determining when to ask which level of questions. The important point to remember about the levels of questions is that higher level questions stimulate students to think, and thus you should be asking analysis, synthesis and evaluation questions as frequently as possible.

Go on to the Self-Check.

SELF-CHECK FOR LEARNING ACTIVITY #2

I. For each of the following characteristics of questions, identify the cognitive level it describes by writing the appropriate letter on the line next to the characteristic.

a. Knowledge
b. Comprehension
c. Application
d. Analysis
e. Synthesis
f. Evaluation

___ 1. Asks a student to relate material to other ideas.

___ 2. Breaking down material into component parts.

___ 3. Recalling previously learned facts.

___ 4. Identifying how something may be used in an actual situation.

___ 5. Asking a student to put the parts back together to form a new whole.

___ 6. Making a judgement of performance.

II. Identify the level of each of the following questions by placing the letter of your choice on the line next to the question.

a. Knowledge
b. Comprehension
c. Application
d. Analysis
e. Synthesis
f. Evaluation

___ 1. What recommendations do you have to improve the way STAT blood gas orders are handled?

___ 2. Which of these blood samples have abnormal platelets?

___ 3. Why does this patient have symptoms of bleeding and jaundice?

___ 4. Where are the fire extinguishers located on this floor?

___ 5. Why is a patient placed on a respirator after thoracic surgery?

___ 6. How would you change the angle of the x-ray tube if the patient's chin couldn't be lowered?

___ 7. Given the condition of the patient, which rehabilitation plan is best for achieving recovery?

___ 8. For what purposes would the dentist ask for a panoramic view?

___ 9. Prepare a plan to treat this patient following his appendectomy.

Check your answers with the following key.

SELF-CHECK ANSWER KEY

I.
1. b Comprehension
2. d Analysis
3. a Knowledge
4. c Application
5. e Synthesis
6. f Evaluation

II.
1. f. Evaluation--The instructor is asking the student to evaluate the way STAT orders are presently handled and to recommend improvements.

2. c. Application--The student is asked to apply previously learned concepts.

3. d. Analysis--The student is asked to analyze physiological reasons for the patient's symptoms.

4. a. Knowledge--The student is being asked to recall facts.

5. b. Comprehension--The instructor is checking for a student's understanding.

6. c. Application--The student is being asked to apply what was learned in a new situation.

7. f. Evaluation--The student is asked to provide a solution to a problem or a judgement.

8. b. Comprehension--The instructor is checking to see if the student understands why a panoramic view is taken.

9. e. Synthesis--The student is asked to develop or synthesize a treatment plan.

Check your answers. If you had more than three incorrect answers, you should review the levels again. The important point is that you be able to distinguish between low level and high level questions. When you are confident of your ability to do so, go on to Learning Activity #3.

LEARNING ACTIVITY #3

AFFECTIVE QUESTIONING IN THE CLINICAL SETTING

Enabling Objective 3: Examine the use of affective questioning in the clinical setting.

Affective behavior is that behavior that deals with an individual's emotions, interests, beliefs, or values. Clinical instructors can and should help students develop positive affective behavior and value systems toward work, patient care, and the overall health-care environment.

The affective domain has levels similar to the cognitive domain. The specific levels will not be included in this activity, but you may refer to Krathwohl, Bloom,, and Masia (1956) for discussion of the specific levels. It is important for you to note that the learner progresses from a low level of affective behavior, awareness, to the highest level, internalizing values. The ideal goal is to help the student achieve high levels of affective behavior.

Developing Affective Behavior Through Questioning

One way to help students develop positive affective behavior is through oral questioning. Questions may be asked to determine a student's attitude or values about work in the same way that questions are used to determine the student's knowledge of material.

Affective questioning may be incorporated in the clinical setting by questioning students individually or in a group discussion.

Examples of Oral Affective Questions

Oral questioning is used to help a student develop attitudes about work, patients, and other factors related to health-care.

For example, an instructor may ask a student or a group of students:

1) What did you observe about the patient's feelings?

2) How could you have been more understanding with Mrs. Jones?

3) Do you think a staff therapist on the 11-7 shift should be reprimanded for being late for work 2 nights in a row?

4) Assume you make a mistake on a CBC procedure that went unnoticed by your supervisor. Should you report it?

5) Should nurses be allowed to go on strike?

In each of these questions, the students are asked to express their beliefs, values, emotions, or attitudes about work or health-care. Asking questions such as these will help promote character formation within the students, as well as help them internalize their personal attitudes and beliefs.

Application of Affective Questioning in the Clinical Setting

As mentioned in Learning Activity 2, cognitive questions deal with the knowledge needed by the student. The clinical instructor uses cognitive domain questioning to make sure that the student fully understands the concepts related to the clinical skills he/she is practicing.

Affective domain questioning is closely related to the cognitive domain, and the two should be utilized together. The clinical instructor uses affective questioning to help students develop a value system that becomes a part of their functioning as health professionals.

Consider the following situation:

Bill, a respiratory therapy clinical instructor, supervises Joan, a student, as she draws a sample of blood from a critical patient for blood gases. As they leave the patient unit, the patient's wife approaches them in tears, asking them how her husband is doing. Bill, seeing that Joan is unable to reply, explains to the woman that her husband is being taken care of and the physician or nurse will speak with her as soon as possible. Bill then explains to the nurse that the patient's wife is concerned. After completion of the procedure, the following conversation took place:

Bill: Joan, how would you evaluate your performance in drawing the blood sample?

Joan: I thought I did well. I felt confident and made no mistakes.

Bill: How did you feel about the patient's wife approaching us and being upset?

Joan: I didn't know what to say, so I assumed you would speak with her.

Bill: How do you think I handled it?

Joan: Very well. I think you put her at ease, at least for awhile.

Bill: What did I say that put her at ease?

Joan: That her husband is being taken care of and that someone will speak with her shortly.

Bill: Did you notice anything about my voice and actions?

Joan: Your voice was understanding, you gave her a warm smile, and you touched her lightly on her shoulder before you left.

Bill: Good observation. Perhaps next time you can use similar techniques to help the relative or friend of a patient.

As observed in this dialogue, at first Bill used high level cognitive questioning to have Joan evaluate her performance of the skill. Just as importantly, Bill then questioned Joan about her feelings regarding the patient's spouse. It was apparent to him that Joan had difficulty responding to the spouse, and he questioned her to determine why she had difficulty. He also questioned her to determine if she was aware of the verbal and nonverbal responses he had given to the spouse.

What if Bill had ignored the entire situation? Oftentimes clinical instructors assume that the students will follow their examples in dealing with patients, and that affective behavior develops naturally. This may be true in some cases. But most students have greater difficulty dealing with instances such as the one just described than they do with the performance of skills.

Continuous questioning of students to determine their beliefs, values, emotions, and attitudes will help them to deal with this type of situation, and to become better health care professionals.

Using Affective Questioning With Groups

The situation just described involved one-on-one dialogue between an instructor and a student in which the instructor used affective questioning to help the student express her feelings. Affective questioning may also be used with groups of students. The clinical instructor may incorporate affective questioning into a discussion during a clinical conference or during times when students have a few minutes of extra time.

In the teaching methods module, you reviewed alternative techniques for teaching such as case studies, role playing, and simulations. All of these techniques require some degree of questioning. These techniques are usually utilized to help develop affective behavior and, therefore, the clinical instructor should be able to ask affective questions.

The following are examples of affective questions an instructor may use in group discussions, case studies, role-playing, and simulations.

In discussions:

1) What are some signs of professionalism that you observe in your clinical rotation? Lack of professionalism?

2) How would you rate the patient care that you observed today?

Following a case study presentation:

1) Should the therapist be terminated for acting on his own?

2) Do you think the patient felt better after learning the diagnosis?

Following a role-playing or simulation exercise:

1) How well did the technologist educate the patient about the procedure?

2) Did the patient appear frightened?

By now you can probably think of numerous activities in which you can use affective questioning in your clinical area. You must keep in mind that most students will not develop appropriate attitudes or express their beliefs on their own. They need to be questioned affectively as they are presented with "real-life" situations. You should make an attempt to stimulate the discussion of your students' feelings and attitudes with individual students as well as with groups. The development of affective behavior is as important as cognitive development, and they both require extensive questioning.

Go on to the Self-Check.

SELF-CHECK FOR LEARNING ACTIVITY #3

I. Identify each of the following questions as being Cognitive (C) or Affective (A) by placing a C or an A in the line next to the question.

___ 1. What are the steps in performing an IPPB procedure?

___ 2. What safety precautions should be taken when transferring a patient from the bed to a wheelchair?

___ 3. How do you feel about working in the oncology unit?

___ 4. Should a patient be told if he/she is terminally ill?

___ 5. What phases does a dying patient go through?

II. Assume that you are the clinical instructor in each of the following situations. For each situation, write two affective questions that you would ask the student to help stimulate affective growth.

For example:

A nursing student is a half-hour late for her clinical assignment. She arrives appearing nonchalant about it, and proceeds with her care of a patient.

The instructor may ask the student:

a) How do you think your patient felt when you didn't arrive when expected?

b) What might be the consequences of a nurse continually arriving for work late?

1. The clinical instructor overhears a student being rude to an uncooperative patient.

The instructor may ask the student:

a)

b)

2. While walking through a department in the hospital, the instructor and student hear a group of health-care workers in the hall laughing and talking about a party they attended the previous evening.

   The instructor may ask the student:

   a)

   b)

3. The instructor hears a student make the following comment: "I'll complete that exam because I enjoy working with elderly patients."

   The instructor may ask:

   a)

   b)

4. An instructor observes a student stop and talk to a crying patient in the radiology department.

   The instructor may ask:

   a)

   b)

5. While walking past the employee lounge, the instructor and student hear staff medical technologists complaining about the pathologist and how they try to get out of working with him.

The instructor may ask the student:

a)

b)

Check your answers with the following key.

SELF-CHECK ANSWER KEY

I. 1. C

2. C

3. A

4. A

5. C, these are phases in a process of death and dying

II. These are suggestions for possible questions for each situation, and your answers will undoubtedly be different. Compare your answers with the ones listed to see if you are on the right track.

1. a. Why do you think the patient was uncooperative?

   b. How do you think the patient should have been treated?

2. a. Did you notice anything inappropriate about their behavior?

   b. What would you do if you were their supervisor?

3. a. Why do you like to work with elderly patients?

   b. What recommendations could you make to your fellow students who may have difficulty with elderly patients?

4. a. What made you decide to stop and speak with that patient?

   b. What did you do to comfort the patient?

5. a. Why was the behavior exhibited by the technologists inappropriate?

   b. What would you do as a technologist to be able to work with him?

Go on to Learning Activity #4.

LEARNING ACTIVITY #4

IMPROVING THE QUALITY OF QUESTIONING

Enabling Objective 4: Identify strategies that improve the quality of the instructor's questioning skills and the students' responses.

As discussed earlier, questioning is an art that requires determination and effort on the part of the instructor. Oftentimes, instructors have difficulty obtaining desirable responses to questions. Many factors can cause ineffective questioning. Perhaps the question is confusing or asked at an inappropriate level. Or perhaps the instructor doesn't make an attempt to help a student answer the question correctly.

When asking questions in the clinical setting, the instructor may utilize techniques or strategies that are recognized as being effective for improving classroom questioning. The strategies increase the effectiveness of questioning in two ways. They may: 1) improve the quality of the questions themselves; or 2) improve the quality of the students' responses. These strategies include: phrasing, pausing, reinforcement, and probing. Each will be discussed in relationship to clinical teaching.

Phrasing

An important component of affective questioning is the manner in which the teacher "phrases" the question. If you ask a question that is confusing or too obvious, you will not obtain the response you are looking for and will not stimulate the student(s).

Foley and Smilansky (1980) suggest guidelines to follow when phrasing questions. They are:

1) Ask questions that are clear, and use complete sentences which are short and concise.

2) Avoid questions that contain too much data; i.e., "What are some possible reactions to this medication and how would these reactions be treated?"

3) Avoid questions that are too obvious or require only a "yes" or "no" response; i.e., "Is the mitral valve located on the left side or right side of the heart?" Better to ask, "Where is the mitral valve located?"

4) Avoid ambiguous questions such as, "What do you know about IPPB treatments?" Instead, the instructor should ask questions that give the student a focus for thinking; i.e., "How does an IPPB treatment differ from an IPPV treatment?"

Pausing (Wait-time)

Instructors often "fire" questions at students, giving them a minimal amount of time to answer the questions. In these cases, the instructor may as well lecture to the students. After all, the whole purpose of asking a question is to get an answer!

By pausing or increasing the wait time after asking a question, the teacher gives the student(s) more time to think and formulate an answer. Pausing after a question will also help to get all students involved in answering, including those who normally do not answer questions (i.e., slower learners or students who are shy).

A general rule for pausing is to wait 3-5 seconds following a question. This may not sound like a great deal of time, but in reality many teachers wait an average of only one second following a question. By practicing the technique of pausing, you will see the improvement in your students' responses.

Reinforcement

Reinforcement is an effective technique used by teachers at all levels to improve student responses to questions. By using reinforcing replies to students' answers, such as "Correct" and "Excellent," teachers encourage students to respond to questions more frequently and with better answers.

Forms of reinforcement fit into one of two general categories: verbal and nonverbal. Verbal reinforcement is when the teacher rewards a student's answer with a word or phrase such as "Good," "That's right," "Good thinking," or "Fantastic."

Nonverbal reinforcement occurs when the teacher sends some form of physical message or "body language" to the student following a response to a question. No words are spoken. Examples are: smiling, nodding, standing next to the student, or looking at the student.

Reinforcement is only effective when used appropriately. A teacher who reinforces every response with a phrase such as "okay" or "good" is overusing reinforcement and is not using it effectively. Students will question the sincerity of the teacher and their responses will not be improved.

The following is a situation in which the clinical instructor uses reinforcement effectively in a group discussion of nursing students:

Instructor: How would you describe health-care workers who are true professionals?

John: They appear neat and are competent.

Instructor: All right. What are some other characteristics? (Pointing to Joan who appears to want to answer.)

Joan: They really care about patients.

Instructor: (Smiling) Very good point! Any others?

Tammy: They are always on time for work and are dedicated workers.

Instructor: Right. Tammy added a very good characteristic. Recalling what John and Joan said earlier about neatness, competence, and caring for patients, how would you rate the professonalism of our staff at this hospital?

You will note that the instructor reinforced the students in several ways: using comments such as all right, very good point, right; using nonverbal responses such as pointing at a student ready to answer, and smiling; and mentioning the names of the students who answered earlier. By using reinforcement, the instructor encouraged the students to respond.

Negative Reinforcement

Reinforcement may also be given to discourage a particular behavior. This is called negative reinforcement. Negative reinforcement may be given verbally with comments such as "Incorrect," or given nonverbally such as shaking your head when a student responds incorrectly.

Negative reinforcement should only be used when absolutely necessary as it may demotivate students, causing them to be afraid to answer questions. The following are possible instances in which you might use negative reinforcement.

1) When a student continually guesses answers without thinking.

2) When a student appears to lack sincerity in his/her answers.

If a student does answer a question incorrectly, but with sincerity, you should respond to the student in a positive manner such as "That's close," or "Good try." Comments such as these will encourage the student to respond again but with more thought.

Using effective reinforcement techniques results in positive outcomes. Your students will be more motivated, you will receive better responses, and you will help to build a positive self-concept in your students. All of these outcomes will be rewarding to you and your students.

Probing

Probing is a technique used by teachers to improve the quality of the students' responses. To probe means to search or explore in a similar manner as an archaeologist probes for hidden treasures.

When teachers use probing they are searching for better answers to questions by asking more questions. Probing can best be explained with an example: A dental assisting instructor and Mary (a student) are reviewing the radiographs just taken by Mary.

Instructor: Mary, why do you think these films are too dark?

Mary: I used the wrong technique on the x-ray machine.

Instructor: What do you mean by technique?

Mary: Kilovoltage, current, or exposure time.

Instructor: Good. Now, in what ways could these factors make a film darker?

Mary: If the voltage is too high, the films are too dark.

Instructor: What about current and exposure time?

Mary: Increasing current causes excessive darkness and so does an increase in exposure time.

Instructor: Great. Do any other factors affect the darkness?

Mary: I don't think so.

Instructor: What do you do with a film after you expose it?

Mary: I develop it. Oh, I know. The films may be dark due to over-development.

(etc.)

In the previous situation, Mary did not at first provide a clear enough answer. The instructor used prompting to help Mary investigate all the possible causes for the problem. This was accomplished by asking additional questions relating to Mary's responses, hoping to eventually obtain the correct response. Also note the use of different levels of questions and reinforcement of answers.

It should be evident by this example that employing the various techniques will increase the responses given by a student, and also improve the quality of the responses.

When asking questions of your students, you must use phrasing, pausing, reinforcement, and probing techniques that fit within your style of teaching. It is important to remember that these techniques should be used as frequently as possible. Each situation and each student varies, so it is up to you to determine when and how to practice the strategies.

Go to Complete the Self-Check exercise.

SELF-CHECK FOR LEARNING ACTIVITY #4

I. Matching: Select the strategy from column B that is described by each item in column A. Place the letter of your choice in the space provided. An answer may be used more than once.

A		B
_____ 1.	Use only when necessary	a. Positive nonverbal reinforcement
_____ 2.	A search for an answer	b. Positive verbal reinforcement
_____ 3.	Nodding your head	c. Negative reinforcement
_____ 4.	Frowning	d. Probing
_____ 5.	"Great answer!"	e. Phrasing
_____ 6.	Wait-time	f. Pausing

II. Short Answer: The following is part of a conversation between a clinical instructor and a group of nursing students regarding patient education. Read the dialogue (lines 1 - 17) and answer the related questions following the dialogue.

Dialogue

1) Instructor: Why is patient education so important?

2) (After 10 seconds) Why is it important for you as health-care workers to be familiar with patient education?

3) Sue: Because we should be informing our patients.

4) Instructor: Right, Sue, but informing them about what?

5) Sue: About their care procedures and tests they will have.

6) Instructor: Does this mean you should tell a patient that he/she is scheduled to have heart surgery the next week?

7) Sue: Yes, obviously the patient should be told.

8) Instructor: (Looking quizzical) Does the rest of the class agree?

9) Instructor: (10 seconds wait) Does this mean that nurses should inform patients that they are having major surgery?

10) Mark: Of course not.

11) Instructor: Why, Mark?

12) Mark: Because only the physician is allowed to do that.

13) Instructor: Exactly. As Mark stated, it is the physician's responsibility to inform the patient about major procedures such as surgery. So then why do we need to bother with learning the techniques of patient education?

14) Gail: So that you can teach us another course!

15) Instructor: (Ignoring Gail's reply) Karen, referring back to the surgery example, why do we need to learn about patient education?

16) Karen: So that we can educate the patient about the surgical procedure. Pre-op and post-op instructions. We are the key people.

17) Instructor: You're right on target! Someone must inform the patients about the care aspects related to having surgery. Physicians may not have the time.

Questions

1. For each line of the dialogue, identify which (if any) of the techniques of phrasing, pausing, reinforcement, and probing the instructor used.

   1)

   2)

   4)

   6)

   8)

   9)

   11)

   13)

   15)

   17)

2. Did use of the techniques seem to help? Why or why not?

Check your answers with the following key.

SELF-CHECK ANSWER KEY

I. 1) c

2) d

3) a

4) c

5) b

6) f

II. 1. 1) Pausing

2) Phrasing; the first question may have been confusing

4) Positive Reinforcement and Probing

6) Probing

8) Negative reinforcement (looking quizzical), indicating Sue's answer was incorrect.

9) Pausing and Probing

11) Probing

13) Positive Reinforcement and Probing

15) Negative Reinforcement

17) Positive Reinforcement

2. Yes. By using extensive probing, the instructor was able to obtain the desired response.

If you answered most of the questions correctly, great! You may move on to Learning Activity #5.

(Comment: Notice the positive reinforcement--"great"--in the above line.)

LEARNING ACTIVITY #5

HELPING STUDENTS DEVELOP PROBLEM-SOLVING SKILLS

Enabling Objective 5: Analyze techniques that help students develop problem-solving skills in the clinical setting.

Health-care workers are consistently confronted with problems that they must solve. Problems encountered vary as widely as do the professions in health-care. For instance, perhaps a dental hygienist is faced with the problem of having two more patients added to the schedule, or a respiratory therapist may receive orders for two STAT blood gases at the same time. As discussed in the introduction to this module, health-care workers of all types must be able to solve problems quickly and efficiently.

Student health-care workers can be taught to develop skills in problem-solving throughout the duration of their training. Effective oral questioning is an excellent means of helping students develop problem-solving skills.

Questioning Skills Related to Problem-Solving

All of the questioning skills and concepts discussed thus far are used to help students develop problem-solving skills. The first of these, level of questions, is an important consideration. In order to help students to become skillful at problem-solving, you should be asking high level analysis, synthesis, and evaluation questions rather than simple recall questions. Asking a student "How would you handle an emergency situation during an angiogram?" is much more effective than asking, "What types of emergencies would you encounter during an angiogram?"

Secondly, the use of the techniques of phrasing, pausing, reinforcement, and probing, along with the high level questions, will motivate students to attempt to solve problems.

Additional Techniques that Help Students Develop Problem-Solving Skills

Health occupations students typically have limited clinical responsibilities and a limited amount of time allowed for clinical education. As a result, many of them are not confronted with all of the problems that are typically encountered on the night shift, or when working without supervision.

Despite this lack of adequate exposure to "real-life" problems, instructors can employ various techniques to help students develop problem-solving skills.

Possible techniques are: 1) using case studies that describe a problem; 2) conducting a role-playing session; 3) having a drill involving an emergency situation; or 4) discussing the actions of the participants in an actual problem situation.

Examples of problem-solving activities for each of these four techniques are as follows:

1. Case Study

You are assigned the responsibility of caring for a 23-year-old female diabetic. She is upset about her condition and refuses to cooperate. How will you go about providing care for this patient?

2. Role-Playing Session

Assign three students the roles of a dying patient, staff nurse, and staff respiratory therapist. Ask them to act out a situation in which the patient refuses to receive a treatment.

3. Drill

Walk up to a student and say, "I need the emergency drugs right away. Where shall I find them?"

4. Discussion of Actual Situation

A student observes a situation in which a radiologic technologist is requested to do two surgery cases at the same time. Hold a discussion with the student following the incident regarding the manner in which the technologist handled the situation.

The Problem-Solving Process

There is a formal process that may be used to solve virtually any problem. This process involves 4 steps as follows:

1) Define the problem

2) Identify the relevant facts and information about the problem

3) Examine alternative solutions to the problem

4) Select a solution

Using this process along with questioning, the instructor can help students to solve hypothetical and real-life problems.

Let us look at the example of the radiologic technologist confronted with two surgery cases at the same time. The instructor may help the student complete the four steps of the problem-solving process as follows:

1) Defining the Problem

Instructor: "What is the problem that the technologist is faced with?"

Student: "Being asked to do 2 exams at the same time."

2) Identifying Relevant Facts

Instructor: "What factors did the technologist have to consider?"

Student: "Both surgery cases were STAT. There was only one technologist available and only one x-ray machine."

3) Examining Alternative Solutions

Instructor: "What possible solutions did the technologist have?"

Student: "Crying; asking the department for help, speaking with both physicians; doing one exam and then the other, hoping the second physician wouldn't be angry."

4) Selecting a Solution

Instructor: "Do you think the technologist made the best decision?"

Student: "Yes, the technologist spoke with both doctors and found out that one didn't mind waiting 5 more minutes. Both were happy in the end and both cases were completed."

Instructor: "Well done."

Note the instructor's effective use of questioning along with the four-step problem-solving process.

If you have time, you should use this four-step process whenever your students are confronted with a problem. Obviously, you cannot ask a student to utilize the four-step process during an emergency situation. However, this can be done in a discussion at a later time.

Problem-solving is a skill needed by all health-care personnel. Using high level questioning and problem-solving practice sessions, you can help students develop problem-solving skills and help build their self-confidence.

Go on to the Self-Check.

SELF-CHECK FOR LEARNING ACTIVITY #5

1. What are the three levels of questions the instructor should use to help students become skillful at problem-solving?

   1)

   2)

   3)

2. A seriously ill patient confronts a nurse, demanding to be allowed to go home immediately. The nurse, assuming the patient doesn't mean it, ignores the remark and continues with her work.

   A. What is the problem?

   B. What are the relevant facts?

   C. What are the possible solutions?

   D. What was the nurse's solution?

   E. Do you agree with the nurse's solution? Why or why not?

3. Assume that a student has just observed the previous incident and informs you, the clinical instructor, of what happened. Complete the following dialogue by developing possible questions the instructor may ask the student at each step of the 4-step problem-solving process.

   A. Instructor:

   B. Instructor:

   C. Instructor:

   D. Instructor:

Check your answers with the following key.

SELF-CHECK ANSWER KEY

1. 1) Analysis

   2) Synthesis

   3) Evaluation

2. A. A seriously-ill patient demanding to go home

   B. Patient is seriously ill
   Patient is upset

   C. The nurse could have:

   - spoken with the floor supervisor
   - spoken with the patient's physician
   - attempted to help the patient sort out his/her feelings
   - ignore the situation

   D. Ignore the situation

   E. No, the patient was obviously upset and perhaps the nurse could have helped the patient by talking.

3. A. What was the problem in that situation?

   B. What facts should the nurse have considered?

   C. What are the possible choices the nurse could have made?

   D. What solution did she choose, and do you agree with it?

You have possibly written other questions for item 3. This is fine if you feel you are on the right track.

This concludes the Learning Activities of the module. If you feel confident in analyzing questioning and problem-solving strategies, proceed to the Post-Test.

POST-TEST

Directions: Complete this test after successful completion of the 5 learning activities. Do not use the answer key or module itself to take the test.

Answer each question as directed:

1. List three benefits of using oral questioning.

   a.

   b.

   c.

2. You hear the following comment from a floor supervisor: "Betty is a much better clinical instructor than Barb. When she helps a student with a procedure, it gets done twice as fast." Could the supervisor be making an incorrect judgement? Why or why not?

3. Assume you are the clinical instructor of a busy unit and really do not have time to ask the students questions during each procedure. What could you do to compensate for this?

4. Classify the level of each question below by placing the appropriate letter in the space provided.

a. Knowledge	d. Analysis
b. Comprehension	e. Synthesis
c. Application	f. Evaluation

_____ 1. How would you rate the quality of your work?

_____ 2. What are 4 signs of diabetes?

_____ 3. What would you recommend to improve the fire plan on this floor?

_____ 4. How could you use this theory with a real patient?

5. List 5 situations in your clinical setting in which you could use affective questioning. (Example: When we are discussing dress code.)

a.

b.

c.

d.

e.

6. Identify 2 types of group activities in which the clinical instructor could use affective questioning.

7. Identify a strategy the instructor could use to improve each of the following situations:

   a. An instructor asks a question, doesn't get an immediate answer, so he/she provides the correct response.

   b. The instructor asks, "How about oxygen therapy?"

   c. A student correctly answers a difficult question, and the instructor spurts out another question without commenting on the student's reply.

8. Develop a problem situation for your field. Now complete each step of the four-step problem-solving process, using that problem.

Check your answers with the following key.

POST-TEST ANSWER KEY

1. Possible Answers:

   a. recall what they have learned
   b. think critically
   c. see applications of concepts
   d. become actively involved in their learning
   e. learn more on their own
   f. become more interested in the material
   g. develop positive, healthy self-concepts
   h. develop appropriate attitudes toward work and patient-care
   i. become problem-solvers
   j. become motivated to take on greater responsibility

2. Possibly, Barb may take more time questioning her students, whereas Betty may be using low level teaching techniques and may seldom ask questions.

3. Hold discussions with the students in conferences at the end of the day or when there is time.

4. 1. f. Evaluation
   2. a. Knowledge
   3. e. Synthesis
   4. c. Application

5. Possible Answers:

   a. regarding psychosocial and spiritual needs of the patient
   b. patient education
   c. when discussing professionalism
   d. ethical issues
   e. moral issues
   f. when discussing interpersonal relationships between co-workers

6. Role-playing
   Simulations
   Case-studies

7. a. Pausing or probing
   b. Rephrase the question to be less confusing
   c. Positive reinforcement

8. Any situation to which a problem is presented.

The four steps that your answer should include are:

a. identify the problem
b. identify relevant facts
c. examine alternative solutions
d. recommend a solution

If you only missed 1-4 answers, great! Practice will make you artful at asking questions.

SUMMARY OF MODULE

Health-care workers need to be able to solve problems and analyze oftentimes complex situations. The development of problem-solving skills should begin while a student is in his/her health occupations educational program. As the clinical instructor, you are responsible for helping students to develop the needed analytical skills.

By utilizing oral questioning along with the teaching methods and strategies that were discussed in the Teaching Methods and Strategies module, you can help students become high-level problem-solving workers in the health-care field. Furthermore, you and your students will become more excited and enthusiastic about the teaching-learning process.

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